DECISION SYSTEMS inc.*
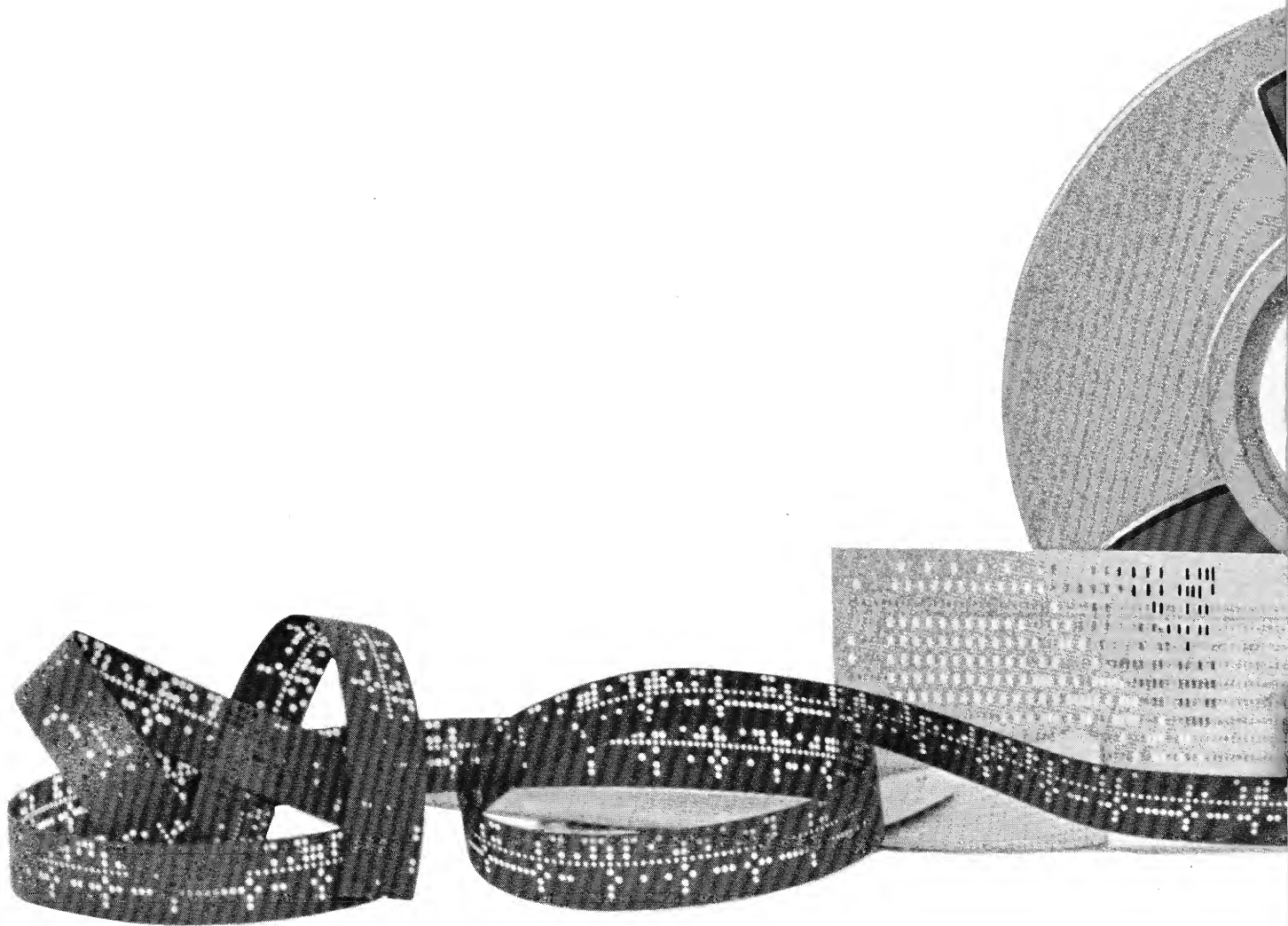A COMPLETE CREATIVE SERVICE FOR THE COMPUTER INDUSTRY

a brief history

Until 1964, Decision Systems Inc. was known as COMPUTRONICS . . . a company offering a complete creative service for the computer industry.

Founded in 1960 by a quartet of exceptional men, growth has been vigorous — new, enlarged headquarters in New Jersey, subsidiary branches in Washington, D. C. and Los Angeles . . . and the new name Decision Systems Inc.

Progress, change, and growth reflect the pace that D.S.I. is setting in a challenging young field . . . the science of making electronic computers produce.

D.S.I. brings a full range of system analysis and program development services to computer-users and computer-makers. As contractor or consultant, Decision Systems Inc. is ready today to design the computer systems of tomorrow.

what our thinkers can do

can do /a cross-section

We at Decision Systems Inc. share a broad array of specialized thinking talent. Educated as mathematicians and engineers, we also hold degrees in such fields as physics and chemistry; psychology and education; accounting and statistics; economics and business administration. We learned our feel for the problems of scientific and business research on the staffs of eminent universities and technological institutes. Keeping ahead of our fast-moving fields, we sharpen our wits on the challenge of metropolitan postgraduate courses and the rivalry of colleagues in our professional societies.

Our computer-handling backgrounds read like a register of government and military agencies, and electronics and aerospace industries. Many of us were midwives to today's generation of computers. Our original developments are embodied in such systems as SAGE, BMEWS, SACCS, FORTRAN, APT. The programs we wrote have analyzed ICBM data; written business reports; evaluated intractable integrals; scheduled equipment maintenance; adapted old programs to new computers; governed production lines; routed men and messages; filled subroutine libraries. At last count, we had worked with more than three dozen different computers. Our grasp of their common principles enables us to master the details of new computers as fast as they are developed.

Decision Systems Inc. includes the right man for the most unusual and demanding job.

real-time

— linking a computer to an external process to generate information which can influence or control the behavior of the process.

AIR TRAFFIC CONTROL

A traffic jam is developing overhead as air travel grows in volume. Arrivals and departures strain airport facilities. Multiple, crowded traffic patterns tax the men in the control towers.

D. S. I. has been called on to help create a real-time computerized air safety system. A system that would combine man and his equipment. A system that would collect data, quickly analyze and correlate it — predict possibilities — offer alternate plans — and within enough time for the air traffic controller to maintain safety.

The secret of D.S.I. real-time speed is twofold: design a "trouble-free" system, and execute a program that allows the air traffic controller to "talk" directly with his computer in his own language.

SIMULATION

The three astronauts of Project APOLLO face a hazard-packed journey into the unknown; success depends on practiced vigilance — but what are they going to use for experience?

The APOLLO astronauts (and their advance scouts, the two orbiting GEMINI astronauts) will run dress-rehearsals of their flights — over and over and over till every detail is second nature — on computer-controlled simulators. From launch trajectory to return landing, the full missions from an astronaut-eye view must be programmed for computer execution— with life-or-death reliability and thoroughness.

Decision Systems Inc. writes simulation programs that meet even APOLLO and GEMINI requirements.

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computer
languages
compiler and assembly programs

Today, man finds himself facing a new problem — that of having to communicate with his machines. The difficulty of making his words understood by his contemporaries is multiplied a hundredfold when he comes up against the high-speed digital computer . . . a machine shackled to an unfamiliar and unwieldy number-code language.

Bringing the two languages together — to translate — is an art; and Decision Systems Inc. has mastered this art for many computers. Sometimes it means creating a new intermediate language called "assembly language" . . . understandable by a few people and a particular computer; other times, "compiler languages" like FORTRAN or COBOL or ALGOL or APT are designed to have a wider following by both people and machines.

This art of making it possible for you to communicate with your computer is a D.S.I. specialty. If you prefer, we can train your people to do their own translations.

Either way, man and computer will understand each other . . . perfectly.
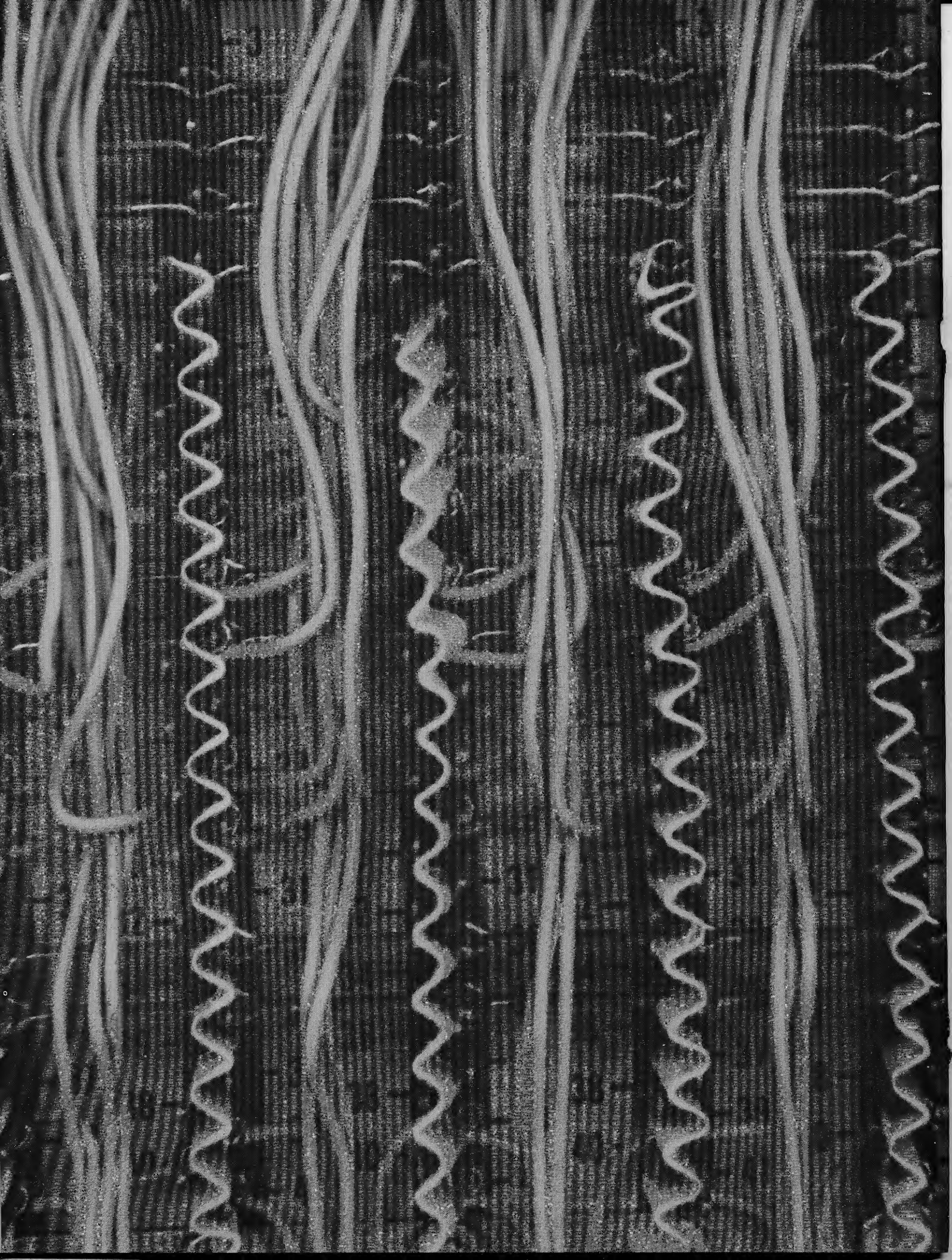
diagnostic programs

## — keeping a computer physically fit

The Strategic Air Command's vital responsibilities brook no delay in the execution of commands, no wavering in the completeness of control. In the intricate network of the SAC 465-L Command and Control System, the Traffic Control Computer plays a crucial role. Its reliability must be defended against possible malfunction or component failure by scrupulously detailed maintenance and instant trouble-shooting. What keeps a finger on the computer's pulse?

The Traffic Control Computer checks its own health with a diagnostic program — a maintenance aid so efficient that it not only spots the flaws, but names the trouble area down to the very plug-in unit at fault. No previous system enjoys such *completeness* in a diagnostic program.

Results like this are what make D.S.I. the outstanding group in the diagnostic field.

file building and
data processing
*— collecting information and making it useful*
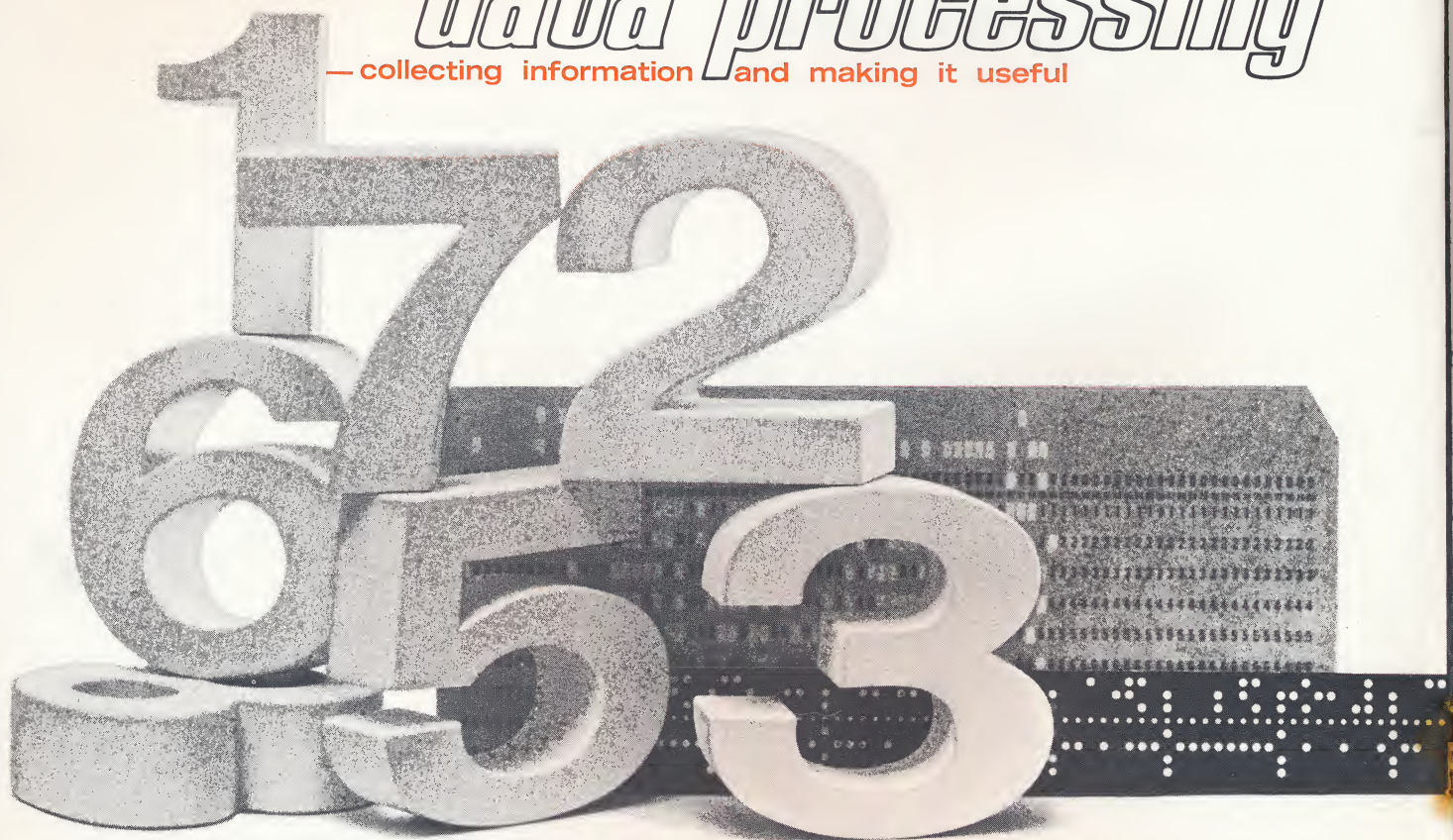
A major publishing company was enjoying the agonies of rapid growth —
but the necessary figures for control were missing. Manual
information-gathering and digesting just took too much time to be useful.
Planning was faltering; falling further and further behind.

D.S.I. was called.
A method for instantly providing the all-important figures was devised.
Management could now get all the pertinent information it needed; daily
reports, weekly reports, monthly reports, semiannual reports, and the
annual report. The D.S.I. system also automatically compared today's
figures with those of a year ago, produced immediate inventory checks,
instant sales analysis, and the complicated royalty payments based on
varying discounting procedures were made readily available.

In addition to the day-to-day information, the D.S.I. system changed the
annual report nightmare into a routine job. The usual harassment to
produce the year-end report was all but eliminated; no need to go over
twelve months of tiresome, tedious, time-consuming work. The computer
takes the eleventh month-to-date report, makes it current, and the company
has its year-end report.

D.S.I. knows how to turn mountains of gross, unwieldy data into useful,
workable information because systems building is tackled before program
writing.
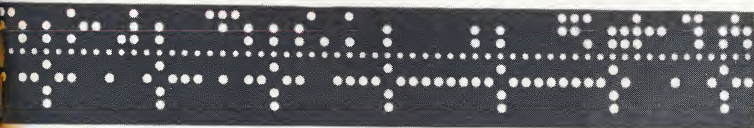
# computer search
—the researcher's helping hand

A biochemist doing research in a specific field runs headlong into the barrier of checking the effects of millions of nameless chemical compounds. Compounds that many other researchers may have worked with — but in totally unrelated fields.

How can the chemist know and build on the experience of others? Must he duplicate their experiments? How can he possibly find the time to read the "tons" of printed materials . . . in all fields . . . particularly when the chemical compounds themselves do not have names?

Where would he start?

Decision Systems Inc. can train a computer to change structural chemical formulas into unambiguous descriptions it can understand — and quickly search its memory for any mention, regardless of source. This selection of "what to read" and the salient points knocks down the seemingly impossible barrier — eliminating duplication.
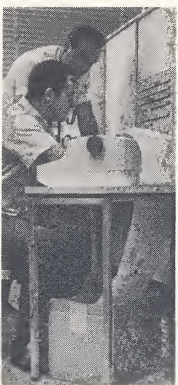
Highly sophisticated types of data-retrieval are responsible for the enviable reputation enjoyed by Decision Systems Inc.
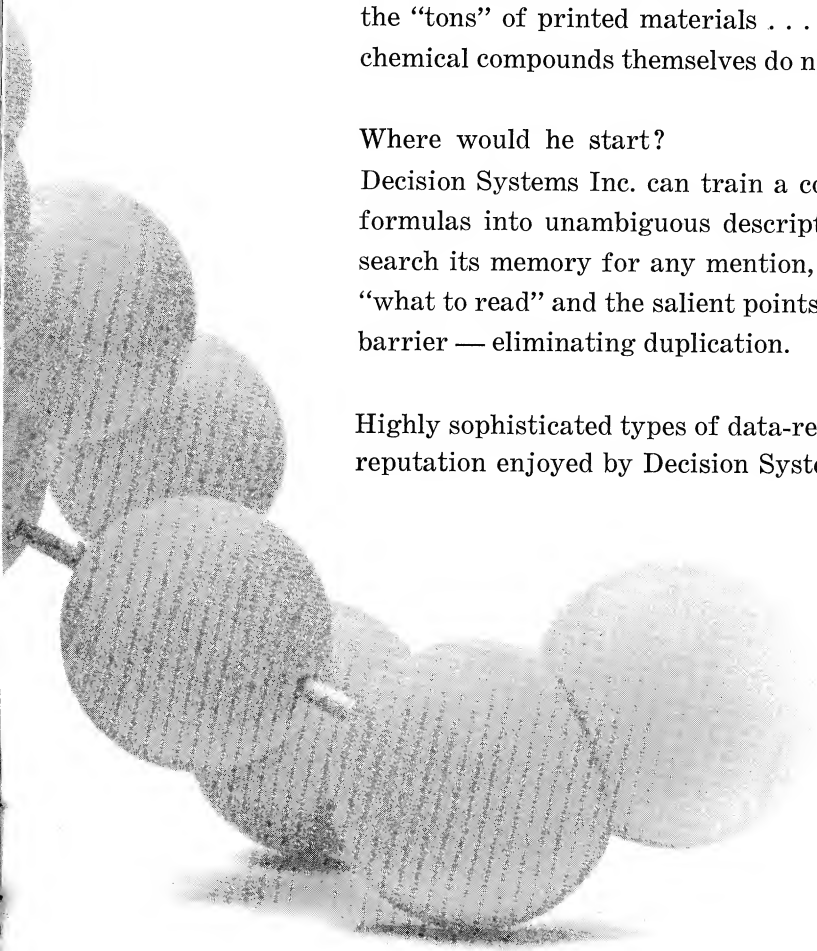
concepts
in action

. . . the science of making electronic computers produce

Many tasks can be performed by computers. Do you get full benefit from your computer? D.S.I. analyzes performance requirements in the light of its thorough acquaintance with what computers can . . . and can't . . . do. Systems analysis, feasibility studies, and performance evaluations are founded on authoritative knowledge.

What equipment meets your needs? As an independent group, D.S.I. gives objective, favoritism-free advice on equipment, from a single data-processing facility to a complex computer-based system. D.S.I. adapts existing equipment to new demands where possible.

Can computer economy be increased? Economy of computer time . . . of programming time . . . of maintenance . . . of reliability . . . of data-processing completeness . . . all are maximized by the experienced insight of D.S.I.

Uneven work loads in your computer department? D.S.I. stands by to supplement your staff, supplying scarce specialization, coping with sudden bulges in work flow.

Deadline anxiety? Our estimates of time . . . and costs . . . are better than guesses. D.S.I. fulfills schedules reliably.

D.S.I. experience ranges from compilers for FORTRAN and other languages to assembly programs and other automatic programming aids; analog as well as digital system design; applications in navigation, inertial guidance, trajectory analysis, orbital tracking; automation planning; subroutine libraries . . . and varied and unique problems of our commercial, scientific, and military clients.

flexibility

... how we handle the brainwork
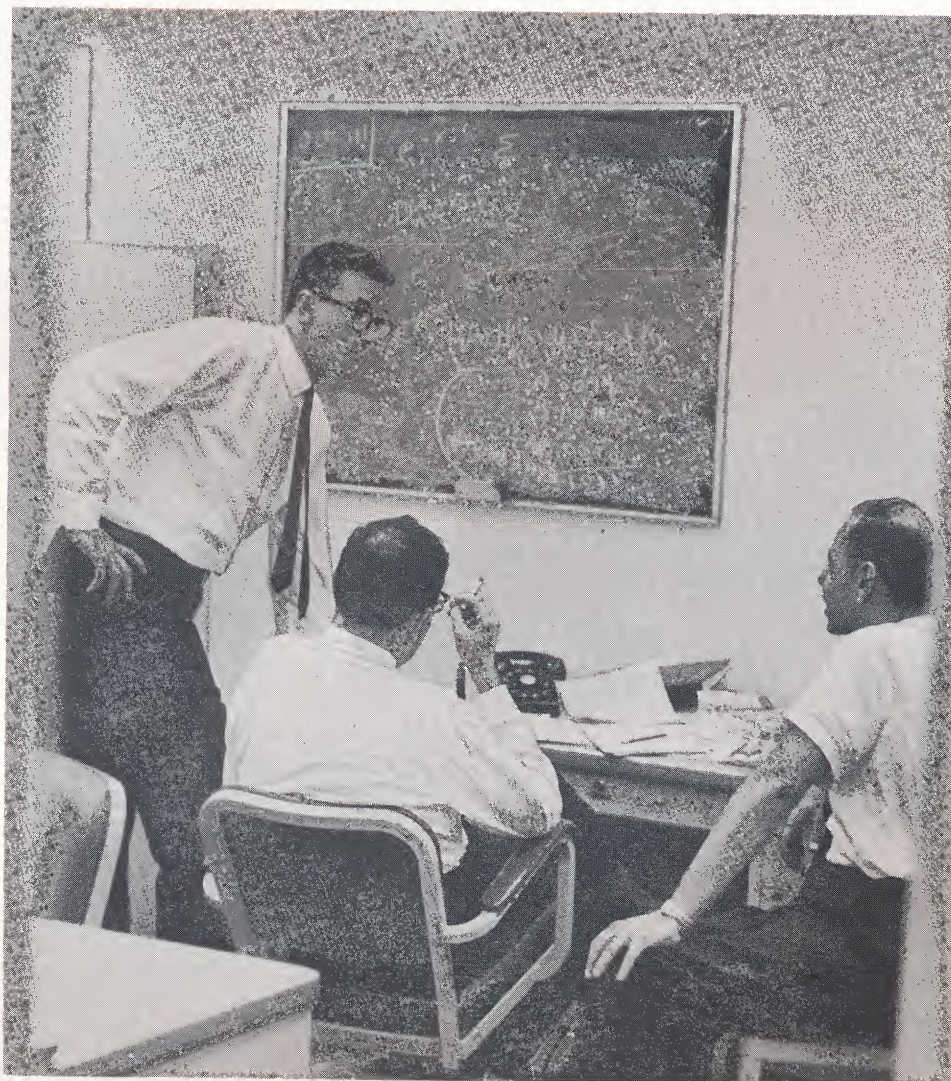
D.S.I. is organized on a project basis — a flexible structure to match our interlocking diversity of function.

For each project, we sift our staff for the member whose ability and experience provide the greatest competence in that particular field. He heads the project; he directs the project team (which is also selected for aptness) ; he is our spokesman with the client.

The right man always runs the job.

resumés

DECISION SYSTEMS INC.

Partial list of those we serve:

International Electric Corporation (an ITT Associate)
Sylvania Electric Products
North American Aviation, Inc.
American Airlines (SABRE System)
Goodyear Aircraft Corporation
U. S. Naval Training Device Center
Federal Aviation Agency
Kearfott Division of General Precision, Inc.
Link Division of General Precision, Inc.
Radio Corporation of America
U. S. Army Ordnance Corps
Maxson Electronics Corporation
Burroughs Corporation
Data and Information Systems Division of ITT
ITT Communications Systems
Curtiss-Wright Corporation
Bunker-Ramo Corporation
Office of Civil Defense
Fidelity-Philadelphia Trust Co.
Tri-State Transportation Committee
Lockheed Electronics Corporation
Grumman Aircraft Engineering Corporation

DECISION SYSTEMS inc.

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